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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,854	05/16/2006	Yoshiyuki Nagaoka	59371US004	7905
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3M INNOVATIVE PROPERTIES COMPANY PO BOX 33427 ST. PAUL, MN 55133-3427				
EXAMINER				
ADDIE, RAYMOND W				
ART UNIT		PAPER NUMBER		
3671				
NOTIFICATION DATE		DELIVERY MODE		
09/29/2008		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

LegalUSDocketing@mmm.com
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Office Action Summary

Application No.

10/595,854

Applicant(s)

NAGAOKA, YOSHIYUKI

Examiner

Raymond W. Addie

Art Unit

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4-6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole 3,036,928 in view of Sawtelle 6,957,869 and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001).

Poole discloses a marking material comprising a layer containing a binder, a pigment, and microballs (col. 2, lines 12-14; 28-30), wherein said layer is adhered to a surface of a structure (10) for use by virtue of the binder contained in the layer. See Fig. 1. However, Poole remains silent as to the marking material being temporary and fails to disclose that the layer and microballs are thermally-expansible. Sawtelle teaches that temporary and permanent markers are old and well known in the art (col. 1, lines 15, 21-23) and at various times there exists the need to remove both existing temporary and permanent road markings, due to new traffic patterns or just simply worn out markings (col. 1, lines 30-32; 13-15; col. 2, lines 48-50).

Therefore, it would have been well within the skill of those in the art at the time the invention was made to remove the marking material of Poole as taught by Sawtelle in order to allow the use of the marking material for a predetermined time frame.

What Poole in view of Sawtelle do not disclose is the use of Microballs.

However, Boeing A&M Environmental Technotes teaches thermally-expansible microballs, which enclose a gas, which expands when exposed to elevated temperatures, and as the microballs expand, they expand and pop the layer, in order to easily remove it. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the microballs and layer of Poole to be thermally-expansible by using thermally-expansible microballs, as taught by Boeing A&M Environmental Technotes, in order to provide the means to assist in the markers removal so that it can be easily removed.

Regarding claims 2 and 6, Boeing A&M Environmental Technotes discloses that the thermally-expansible microballs enclose a gas, which expands when exposed/heated to elevated predetermined temperatures, therefore making the microballs expand at a predetermined temperature; and as the microballs expand they expand and pop the layer, the marking material becoming peelable from the surface of the structure.

Regarding claims 4 and 8, Poole discloses that the marking material and pavement marker comprise a bead layer containing transparent beads (col. 3, lines 59- 61); said bead layer being provided on a side of the layer opposite to a side which contacts with the structure (Fig. 1; col. 4, lines 41-53).

Regarding claim 5, Poole discloses a pavement marker comprising a marking material as described above, wherein the pavement marker is disposed, for use, on a pavement as a surface of the structure by virtue of the binder contained in the layer (as seen in Fig. 1). However, Poole remains silent as to the marking material being temporary and fails to disclose that the layer and microballs are thermally-expansible. Sawtelle teaches that temporary and permanent markers are old and well known in the art (col. 1, lines 15, 21-23) and at various times there exists the need to remove both existing temporary and permanent road markings, due to new traffic patterns or just simply worn out markings (col. 1, lines 30-32; 13-15; col. 2, lines 48-50). It would have been well within the skill of those in the art at the time the invention was made to make the pavement marker of Poole removable, as taught by Sawtelle in order to allow the use of the marking material for a predetermined amount of time. Further, Boeing A&M Environmental Technotes teaches thermally-expansible microballs, as set forth above. Further, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the microballs and layer of Poole to be thermally-expansible by using thermally-expansible microballs, as taught by Boeing A&M Environmental Technotes, in order to provide the means to assist in the markers removal so that it can be easily removed.

2. Claim 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poole 3,036,928 in view of Sawtelle 6,957,869 and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001) as applied to claims 2 and 5 above, and further in view of Matsumoto website (http://web.archive.org/web/20010719003525/http://mtmtys.co.jp/english/product/fmc_f_f.htm) (July 19, 2001).

Poole as modified by Sawtelle and Boeing A&M Environmental Technotes discloses a marking material and pavement marker as set forth above, but fails to disclose that the thermally-expandable microballs have an expandability of at least 10 times in terms of volume, compared with the volume thereof at the temperature of working atmosphere. Matsumoto website teaches that it is well known in the art to have expansion ratios of approx. 20, 60 and 70 of thermally-expandable microballs mixed and formed into a layer, ratios depending on particle size. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the thermally-expandable microballs of Poole as modified by Sawtelle and Boeing A&M Environmental Technotes to have an expandability of at least 10 times in terms of volume, depending on particle size, as taught by Matsumoto website, since this is well known in the art of thermally-expandable microballs, in order to expand the layer, pop and easily remove it.

3. Claims 1, 2, 4-6, 8 rejected under 35 U.S.C. 103(a) as being unpatentable over Wallgren et al. (Wallgren) # US 2003/0012599 A1 in view of and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001).

Wallgren discloses a temporary roadway marking material (A), for use in temporary traffic diversions comprising:

A thermally expansive layer (2) comprising a binder.

A pigment (9).

A layer of transparent beads (5), on a top side of the marking material (A), form

Wherein the thermally expansive layer (2) is adhered to a surface of a structure for use by virtue of the binder contained in the thermally-expansible layer. See Para. [0028-

0058]. What Wallgren does not disclose is the use of thermally-expansive microballs.

However, Boeing A&M Environmental Technotes teaches it is known to remove materials, such as paint, from a surface, using thermally-expansible microballs, which enclose a gas that expands when exposed to predetermined temperatures, such as 175F. And as the microballs expand, they pop the coating layer, in order to easily remove it and any paint thereon. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the temporary road marking material, of Wallgren, with thermally expansible microballs, as taught by Boeing, in order to facilitate removal of the roadway marking material.

4. Claims 3, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallgren et al. (Wallgren) # US 2003/0012599 A1 in view of and Boeing A&M Environmental Technotes, Volume 6, Number 2 (May 2001), as applied to claims 1, 5 above, and further in view of Matsumoto website (http://web.archive.org/web/20010719003525/http://mtmtys.co.jp/english/product/fmc_f_f.htm) (July 19, 2001).

Wallgren et al. in view of Boeing disclose essentially all that is claimed, except for the degree of expandability of the microballs. However, Matsumoto teaches it is known that microballs filled with a hydrocarbon are known to expand 20, 60 or even 70 times the unheated diameter. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made that the roadway marking material of Wallgren et al. in view of Boeing would have microballs, capable of expanding at least 10 times, as taught by Matsumoto, in order to facilitate removal of the marking material.

Response to Arguments

5. Applicant's arguments filed 6/9/2008 have been fully considered but they are not persuasive.

Applicant argues against the combination of Poole in view of Sawtelle and Boeing, by stating: "Applicant first asserts that there is no suggestion or motivation in either of these references (or anything cited or argued by the Examiner) for the replacement of the glass beads of Poole with the microspheres of Boeing"

However, the Examiner does not concur.

Nowhere in the rejection of the last office action, has it been suggested the light-reflecting glass beads of Poole in view of Sawtelle, be replaced.

Rather, as cited above, Poole in view of Sawtelle clearly suggest roadway markings, are

removable for a variety of reasons. Boeing teaches it is known to use a coating that includes heat-activated microballs to remove paint from a surface. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the roadway marking material of Poole in view of Sawtelle, with heat activated microballs, in order to facilitate removal of the road marking material within a desired time frame.

Thus, in response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ (CCPA1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references, is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures. *In re Bozek*, 163 USPQ 545 (CCPA 1969).

In this case, Poole discloses roadway markings having pigments, reflective glass beads and thermally expansive layers having binders, are extremely old and well known. Sawtelle teaches it is known that roadway markings are removable for a variety of reasons.

Further, Boeing teaches heat activated microballs, used to remove paint from a surface,

predates Applicant's invention by at least 2 1/2 years. Thus, one of skill in the art, having knowledge of the prior art teachings put forth above, would expect a high degree of success when attempting to remove a roadway marking material from a roadway, by expanding the heat activated microballs, to sever the marking material from the roadway.

Conclusion

6. Although the rejection put forth above does include a new grounds of rejection; the new grounds of rejection is in addition too the prior art rejections put forth in the office action mailed 4/17/2008.

7. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond W. Addie whose telephone number is 571 272-6986. The examiner can normally be reached on 7am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571 272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Raymond W. Addie/
Primary Examiner, Art Unit 3671

9/23/2008